Original Research Article

FACTORS ASSOCIATED WITH THE OCCURRENCE OF SKIN DISEASES AMONG CHILDREN ATTENDING THE CHILDREN'S OUTPATIENT CLINIC IN A TERTIARY CARE HOSPITAL IN SOUTHERN NIGERIA.

Aims: To determine the factors associated with the occurrence of skin diseases among children attending the Children's Outpatient Clinic of the University of Port Harcourt Teaching Hospital (UPTH).

Study design: A Cross sectional study design was used. It was both descriptive and analytical.

Place and Duration of Study: The study was carried out in the Childrens' Outpatient Clinic of the Department of Paediatrics, UPTH from June to August 2020 (3 months).

Methodology: We studied 370 children aged less than 18 years. A semi structured interviewer-administered questionnaire was used to obtain all relevant data. This was followed by dermatological examination of the children to make diagnosis of skin diseases. Relevant samples for laboratory confirmation were also obtained where necessary.

Results: Among the 88 children (23.7%) who had skin diseases, our study showed that the socio-demographic factors associated with the occurrence of skin diseases includes: male gender (p=0.001) and low socio-economic class (p<0.001). Hygiene-related factors associated with occurrence of skin diseases includes: lack of water within the home (p=0.001), bath frequency < twice per day (p=0.001) and sharing of personal items (p<0.001). On multiple logistic regression analysis of these factors, the factors predictive of skin diseases were: male gender (p=0.000), low and middle socioeconomic class (p=0.004) and lack of water within the home (p=0.013).

Conclusion: Several socio-demographic and hygiene-related factors were identified to be associated with the occurrence of skin diseases among children in our study. These factors provide an important

window for interventions to prevent and control the burden of skin diseases among children in our setting.

Keywords: Factors, Associated, Skin diseases, Children

1. INTRODUCTION

Skin diseases are common in children occurring with a prevalence of between 16% and 72% in studies done in sub-saharan Africa [1-6]. Unidentified and untreated skin diseases may lead to physical discomfort and negative psychosocial effects such as depression and low self-esteem in affected children [4,7,8].. Apparently minor conditions such as pruritus due to atopic dermatitis or papular urticarial may greatly impair quality of life [7,8]. It is therefore necessary to identify factors associated with skin diseases in children as this will provide an important window of opportunity for interventions geared towards the prevention and control of these skin diseases.

In a study done in Nepal, Gauchan et al. [9], reported factors associated with skin diseases especially infections and infestations to include: low socio-economic status, overcrowding, sharing of common bath items and less frequent baths (<1 /week). Parental education was however not associated with skin diseases from their study.

In Saudi Arabia, a study conducted by Amin et al.[10], showed that large family size was a positive predictor of fungal skin infections and also pediculosis. Similarly, rural residence was found to be a positive predictor of pediculosis but a higher maternal education was protective against both disease conditions. Negative predictors of skin diseases among the children studied included frequent bathing and high family income.

In the study by Suman et al. [11] in India, age and gender were reported as showing no significant association with the prevalence of skin diseases. However, the prevalence of infectious skin diseases decreased significantly with increases in the educational status of the parents. Similarly, the prevalence of transmissible skin diseases also increased significantly with decrease in the socioeconomic status.

Furthermore, a study by Lulu et al. [12] in Ethiopia reported that although skin diseases were more common in females and in the 6-10 years age group, no significant association between age or gender and the prevalence of skin diseases could be established from the study. Skin diseases were significantly more common among children of parents who could not read or write and also children from families living in single rooms. Although use of soap to bath was found to be associated with a reduced prevalence of skin diseases, lack of access to tap water and less frequent baths (<1/week) suprisingly had no association with skin diseases.

A study done among primary school children in Egypt [13] reported sociodemographic factors associated with a higher prevalence of skin diseases to include attendance of public school; low parental education, occupation and social status.

Personal hygiene risk factors for skin diseases were poor body, hair and environmental hygiene while health care behaviour risk factors were lack of skin examination for students, no early consultation for skin diseases and failure to comply with prescribed therapy. Also, female gender, being the last child in the birth order, presence of similar lesion in family member, overcrowding, co-sleeping, shared water supply and bathing facilities were additional risk factors for skin diseases identified from the study.

In a study done in Mauritius [14], age of participants showed no significant association with the prevalence of skin diseases. However, several factors were identified to correlate positively with skin diseases and these included climatic conditions, spicy and oily foods, sports practice and a family history of skin disease.

In Cote d'Ivoire, Skin diseases were found to be more common in males and in children from families with low socioeconomic status [15] while Ozcelik et al. [16] found that skin diseases were most common in the 12-16 years age group and also more common among females compared to males in the study done in Turkey.

Furthermore, a study by Oyedeji et al. [17] in South-Western Nigeria showed that skin infections and infestations were significantly more prevalent among children of poorly educated parents, unmarried parents, low parental occupational groups and also among children from families that belong to the low socio-economic class. Male gender was also significantly associated with occurrence of skin infections and infestations.

We set out to determine the factors associated with the occurrence of skin diseases among children attending the children outpatient clinic in UPTH, Port Harcourt. This is important as there are still knowledge gaps in this aspect in our locality. Findings from our study could aid clinicians and policy makers in the design of interventions towards the prevention and control of these skin diseases.

2. MATERIAL AND METHODS

2.1 Study Design

A Cross sectional study design was used to conduct this study among children attending the Childrens' outpatient clinic over a 3 month period (June 2020- August 2020). It was both descriptive and analytical.

2.2 Study Population and Sampling Method

The study population consisted of children aged less than 18 years who attended the Children's outpatient clinic within the period of the study. All children within this age bracket whose parents gave consent were included in the study.

Neonates were excluded from the study to allow for a more consistent sampling as only a small fraction of them present to the Childrens' outpatient clinic with the majority receiving care at the Special Care Baby Unit (SCBU) or through the Children's Emergency Ward (CHEW). A sample size of 370 was derived based on the sample size formula for prevalence studies and using the prevalence from a previous Nigerian study [18]. Systematic sampling method was used to recruit the study participants using a sampling interval of two as derived from the estimated number of children to be seen in the clinic over the given period (900). A total of 372 questionnaires were administered in the recruitment of the study participants as two adolescent children declined assent for complete physical examination and were therefore excluded from the study giving the final sample size of 370.

2.3 Methods

A semi-structured interviewer administered questionnaire was used to obtain relevant data from all participating children. These data included socio-demographic characteristics, history of skin diseases and hygiene-related habits. This was followed by a complete physical examination to detect the presence of skin lesions. Skin diseases were diagnosed where there was a visible skin lesion as at the time of the physical examination. Diagnosis of skin diseases were mainly clinical but were accompanied by relevant laboratory tests such as Potassium Hydroxide (KOH) mount and microbial cultures where necessary. All diagnoses of skin diseases were made by a trained paediatric dermatologist.

2.4 Statistical Analysis

Data collected were coded and entered into Microsoft excel before analysis using the IBM SPSS Statistics version 25.0. Discreet variables were compared using Chi-square test or Fisher exact test as appropriate. Multiple logistic regression analysis of factors associated with skin diseases was carried out to identify the predictors of skin diseases. Statistical significance was set at 95% confidence interval with p-value<0.05.

3. RESULTS

A total of 370 children aged 1 month to 17 years were studied. The mean age of study participants was 8.4 ± 5.9 years. There were 180 males and 190 females giving a male to female ratio of 0.9:1. The overall prevalence of skin diseases among the children studied was 23.7% (figure 1).

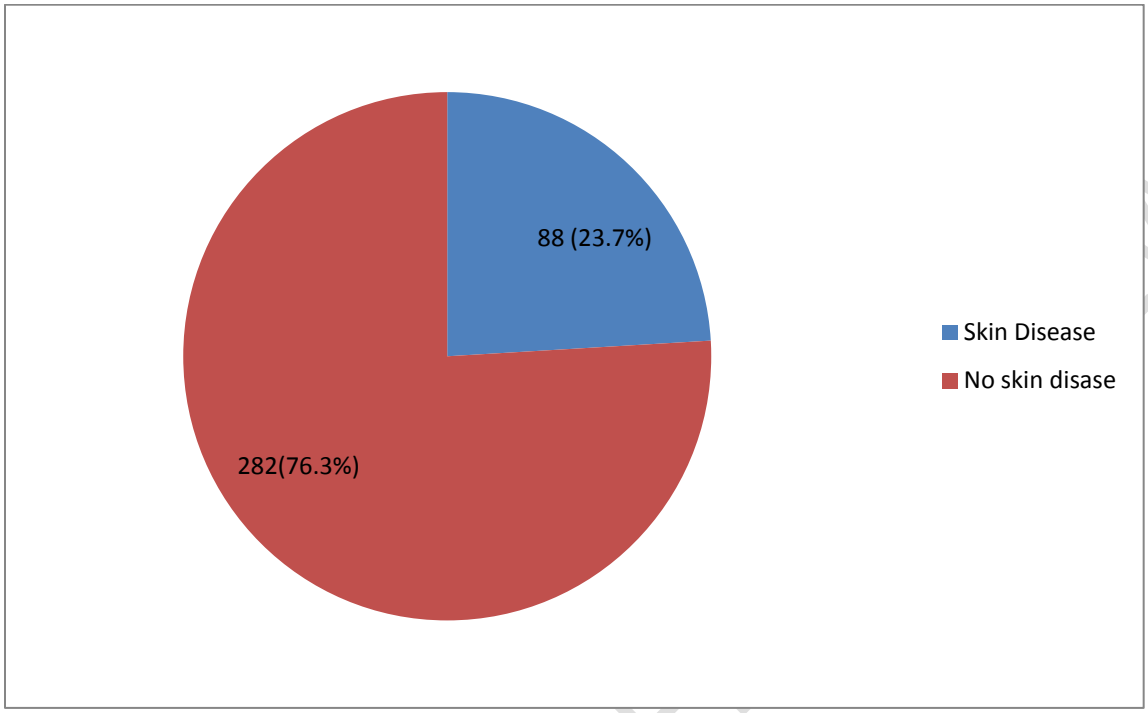

Figure 1: Prevalence of skin diseases.

Socio-demographic factors (Table 1.0) associated with the occurrence of skin diseases included: male gender (p=0.001) and low socio-economic class (p<0.001) .

Table 1.0: Association between socio-demographic characteristics and presence of skin diseases n=370

Variable	Disease	No disease	Total	X^2(P-Value)
	n =88(%)	n=282(%)	370(100.0)	
Age group				
1month-<6yrs	42(27.8)	109(72.2)	151(100.0)	3.414(0.181)
6yrs-<12 yrs	31(23.5)	101(76.5)	132(100.0)	
12yrs-<18 yrs	15(17.2)	72(82.2)	87(100.0)	
Sex				

Male	57(31.7)	123(68.3)	180(100.0)	12.016(0.001)**
Female	31(16.3)	159(83.7)	190(100.0)	
Class				
Pre nursery/Nursery	43(26.2)	121(73.8)	164(100.0)	1.088(0.780)*
Primary	35(22.4)	121(77.6)	156(100.0)	
Junior secondary	6(0.2)	24(0.8)	30(100.0)	
Senior secondary	4(0.2)	16(0.8)	20(100.0)	
Birth Order				
1-4	76(23.0)	254(77.0)	330(100.0)	0.956(0.328)
5 and more	12(0.3)	28(0.7)	40(100.0)	
Residence				
Rural	4(36.4)	7(63.6)	11(100.0)	1.344(0.511)*
Sub-urban	43(22.2)	151(77.8)	194(100.0)	
Urban	41(24.8)	124(75.2)	165(100.0)	
Social class				
Low	33(42.9)	44(57.1)	77(100.0)	20.252(<0.001)**
Middle	35(20.6)	135(79.4)	170(100.0)	
Upper	20(16.3)	103(83.7)	123(100.0)	

*Fishers exact, **Statistically significant

Hygiene-related characteristics (Table 2.0) associated with occurrence of skin diseases included : lack of water within the home (p=0.001), bath frequency < twice per day (p=0.001) and sharing of personal items (p<0.001).

Table 2.0: Association between Hygiene-related characteristics and presence of skin diseases n=370

Variable	Disease	No Disease	Total	X^2(P-Value)
Source of water				
Bore hole	77(24.3)	242(75.7)	319(100.0)	2.658(0.572)*
Underground	7(23.3)	23(76.7)	30(100.0)	
Sachet water	2(12.5)	14(87.5)	16(100.0)	
Cway	1(50.0)	1(50.0)	2(100.0)	
Bottle water	1(33.3)	2(66.7)	3(100.0)	
Location of Water				
House	33(16.7)	165(83.3)	198(100.0)	11.902(0.001)**
Not in the house	55(32.0)	117(68.0)	172(100.0)	
Bath				
Once	48(18.6)	210(81.4)	258(100.0)	13.080(0.001)**
Twice	40(36.4)	70(63.6)	110(100.0)	

Three times	0(0.0)	2(100.0)	2(100.0)	
soap				
Medicated	13(18.8)	56(81.2)	69(100.0)	1.143(0.285)
Non Medicated	75(24.9)	226(75.1)	301(100.0)	
Share items				
Yes	54(33.8)	106(66.2)	160(100.0)	15.447(<0.001)**
No	34(16.2)	176(83.8)	210(100.0)	

*Fishers exact, ** Statistically significant

Multiple logistic regression analysis of these factors (Table 3.0) showed that the factors predictive of skin diseases were: male gender (p=0.000), low and middle socioeconomic class (p=0.004) and lack of water within the home (p=0.013).

Table 3.0 : Predictors of Skin Diseases

Variable	Crude odds	95% C.I.		P-Value	Ad Odds	95% C.I		P-Value
Sex								
Males	2.377	1.446	3.906	0.001	2.653	1.571	4.479	0.000
Females	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Social class								
Low	3.862	2.000	7.459	<0.001	3.075	1.421	6.652	0.004
Middle	1.335	0.728	2.448	0.350	1.061	0.541	2.081	0.862
Upper	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
No of rooms								
1	2.296	1.139	4.630	0.020	1.036	0.448	2.397	0.934
2	1.690	0.865	3.302	0.125	1.231	0.593	2.554	0.577
3 and more	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**
Location of Water								
House	0.425	0.260	0.696	0.001	0.493	0.283	0.859	0.013
Not in the house	Ref	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**	**Ref**

4.0 DISCUSSION

In the present study, male gender was found to be significantly associated with skin disease occurrence. The reason for this is unknown but it could be that the sometimes more adventurous nature of males may increase their chances of coming into contact with some of the aetiologic agents of these skin diseases. A similar finding was reported in Cote d'Ivoire [15]. In contrast, El-Moselhy et al.[13] in Egypt and Lulu et al. [12] in Ethiopia both found that skin diseases

were significantly more common in females than males in their studies. Other authors however reported that gender of participants had no association with the occurrence of skin diseases [11,12]

Furthermore, low socio-economic status was noted to be associated with the occurrence of skin diseases in our study. This is understandable as a falling socio-economic status may promote poor housing, overcrowding and unsanitary conditions all of which will enhance the occurrence of skin diseases especially the infective ones. Studies by other authors have also corroborated this association between low socio-economic status and skin diseases in children [3,11,15,17].

The present study also evaluated hygiene-related factors associated with the occurrence of skin diseases. Absence of a water source within the home and bath frequency less than twice per day were both associated with occurrence of skin. This could be because of the fact that water is very essential for the maintenance of both personal and environmental hygiene. It is required for hygiene-related activities such as bathing, washing of clothes and cleaning of the home. Its absence within the home will therefore promote unsanitary conditions enabling the occurrence of these skin diseases. Other studies have also reported a significant association between low bath frequency and skin diseases [10,19]. In contrast, a study done in Ethiopia found no association between access to tap water or bath frequency and skin diseases [12].

Also, sharing of personal items such as sponge and towels was significantly associated with the occurrence of skin diseases. This is because, these items can serve as fomites harboring and transmitting the micro-organisms responsible for these skin diseases from one person to another. Gauchan et al. [9] reported a similar finding in a study done in Nepal.

Our study may have been limited by the relatively short duration covered as a longer duration would have allowed for a larger sampling frame to be generated.

5.0 CONCLUSION

Factors predictive of skin diseases were in the present study included: male gender (p=0.000), low and middle socioeconomic class (p=0.004) and lack of water within the home (p=0.013). These factors provide an important window for interventions to prevent and control the burden of skin diseases among children in our setting.

CONSENT

Written informed consent was obtained from the parents/Guardians of all participating children. Assent was obtained from children aged 10 years and above.

ETHICAL APPROVAL

Ethical approval was obtained from The University Of Port Harcourt Teaching Hospital (UPTH/ADM/90/S.II/VOL.XI/815).

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